UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/054,327.	11/13/2001	Whu-Ming Young	ITEX 99001C2	7027

25700 7590 11/30/2004		EXAMINER
FARJAMI & FARJAMI LLP		FAN, CHIEH M
26522 LA ALAMEDA AVENUE, SUITE 360		
MISSION VIEJO, CA 92691		

ART UNIT	PAPER NUMBER
2634	

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Please find below and/or attached an Office communication concerning this application or proceeding.

PTO 90C (Rev 10/03)

	Application No.	Applicant(s)
Office Action Summary	10/054,327	YOUNG ET AL.
	Examiner	Art Unit	
	Chieh M Fan	2634	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) FROM
THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed
  after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any
  earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *18 August 2004*.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is
closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *17-21,27,28,30,31,37-41 and 61-95* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☒ Claim(s) *61-66 and 83-95* is/are allowed.

6)☒ Claim(s) *17-21,27,30,31,67-69 and 71-82* is/are rejected.

7)☒ Claim(s) *28,37-41 and 70* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *13 November 2001* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some *   c)☐ None of:

    1.☐ Certified copies of the priority documents have been received.

    2.☐ Certified copies of the priority documents have been received in Application No. _____.

    3.☐ Copies of the certified copies of the priority documents have been received in this National Stage
    application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
      Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
      Paper No(s)/Mail Date. _____ .

5)☐ Notice of Informal Patent Application (PTO-152)

6)☐ Other: _____.

DETAILED ACTION

This Office Action is in response to the latest amendment filed on 8/18/04.

Claim Objections

1.   Claims 37-41 are objected to because of the following informalities: "one or more of said xDSL data frames" in line 4 from the bottom of claim 37 should be changed to --- one or more of the xDSL data frames --- so as to avoid antecedent basis problem since the term "xDSL data frames" has not been mentioned before in the claim. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2.   The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3.   Claims 17, 67, 69, 71-73, 78 and 82 are rejected under 35 U.S.C. 102(e) as being anticipated by Timm et al. (U.S. Patent No. 6,055,268, "Timm" hereinafter).

Regarding claim 17, Timm teaches a method for transmitting data on an xDSL

digital communications link (col. 5, lines 48-49) between a digital controller (150 in Fig.

1b) and an analog codec (170, 172 in Fig. 1b) located within a personal computer

system, the method comprising the steps of:

(a) generating a bit clock (SAMPLE CLOCK in Fig. 1b) adapted for data

transmission requirements of the xDSL digital communications link; and

(b) communicating the data and operational and/or control information,

embedded in a plurality of words (col. 9, lines 46-47), between the digital controller and

analog codec at a rate corresponding to said bit clock wherein each of the plurality of

words includes a portion of the data and a portion of the operational and/or control

information, and wherein said operational and/or control information embedded in each

of said plurality of words is transmitted over a data line during a first time period

corresponding to a first number of bit clock periods, and the data embedded in each of

said plurality of words is transmitted over said data line during a second time period

corresponding to a second number of bit clock periods (196, 198, 199 in Fig. 1d; 187 in

Fig. 1e; 36 in Fig. 4a; that is, the data and the control information are time-multiplexed).

Regarding claim 67, as explained above, Timm teaches time-multiplexing the

data and control information. The claimed limitation is clearly met.

Regarding claim 69, since the control information is at least one bit (otherwise

there will be no control information), the claimed limitation is inherent.

Regarding claim 71, Timm teaches a method of transmitting data over a digital

subscriber loop (DSL) based communications link between a DSL digital circuit section

(150 in Fig. 1b) and an a DSL analog circuit section (170, 172 in Fig. 1b) comprising the

steps of:

(a) generating a DSL bit clock signal (see SAMPLE CLOCK in Fig. 1b) adapted

for data transmission requirements of the DSL based communications link; and

(b) transmitting DSL data over a data line between the DSL digital circuit section

and the DSL analog circuit section based on said DSL bit clock signal (see BUFFER to

DAC 170 in Fig. 1b; also see "INPUT DATA BIT STREAM" entering 36 in Fig. 4a); and

(c) transmitting DSL operational and/or control information over said data line

based on said DSL bit clock signal (see BUFFER to DAC 170 in Fig. 1b; also see

"CONTROL CHANNEL, OPERATIONS CHANNEL" entering 36 in Fig. 4a); and

wherein said data line is time division multiplexed (col. 9, lines 46-47) in such that

either one or more bits of said DSL operational and/or control information are

embedded within each word of said DSL data transferred between the DSL digital circuit

section and the DSL analog circuit section over said data line (196, 198, 199 in Fig. 1d;

187 in Fig. 1e; 36 in Fig. 4a).

Regarding claim 72, Timm also teaches generating a separate DSL word clock

signal (SYMBOL CLOCK in Fig. 1b) based on the DSL bit clock signal (SAMPLE

CLOCK in Fig. 1b).

Regarding claim 73, the DSL data of Timm is digital since the DSL data is input

to the DAC 170 in Fig. 1b.

Regarding claim 78, it is inherent a control signal has a predetermined length.

Regarding claim 82, Timm teaches embedded operations channels (198 in Fig. 1d).

Claim Rejections - 35 USC § 103

4.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5.   Claim 68 is rejected under 35 U.S.C. 103(a) as being unpatentable over Timm et al. (U.S. Patent No. 6,055,268, "Timm" hereinafter).

Timm teaches the claimed invention (see the rationale applied to claim 17 above) including a symbol clock, but does not specifically teaches the period of the symbol clock is at least 4 bit clock periods. However, the number of bits in a symbol is clear a matter of design options, dictated by system requirement and user's need.

6.   Claims 18-21, 74-77 and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timm et al. (U.S. Patent No. 6,055,268, "Timm" hereinafter) in view of Bae et al. (U.S. Patent No. 5,832,387).

Regarding claim 18, 19 and 74-77, Timm teaches the claimed subject matter (see the rationale applied to claims 17 and 71 above), but does not particularly point out the control and/or operation information is related to system setting or power

management of an xDSL modem. However, the use of a control signal for system setting or for controlling transmission power is well known and widely used in the art so as to provide the user more flexibility to change the system constraints as desired or required without physically approaching to the system. The content of the control signal is a matter of design choice, dictated by the system requirements. For example, Bae teaches adaptively controlling transmission using a control signal in a DSL system (col. 3, lines 29-42). Based on the reason, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the control and/or operational information of Timm to control the system setting or the power to a desired value.

Regarding clam 20, the network architecture of Timm enables Asynchronous Transfer Mode (ATM) connection (col. 12, lines 23-24).

Regarding claim 21, it is known in the art that asynchronous transmission is a method of data transmission which allows characters to be sent at irregular intervals by preceding each character with a start bit, and following it with a stop bit (official notice is taken here). Since Timm teaches asynchronous transmission, Timm inherently/implicitly teaches using a start bit.

Regarding claim 79, the length of control information is just a matter of design choice, depending on the content of the control information required by the system.

7.   Claims 27 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bingham et al. (US Patent 5,680,394, "Bingham" hereinafter) in view of Timm et al. (U.S. Patent No. 6,055,268, "Timm" hereinafter).

Bingham discloses a method for the transmission of xDSL data (see col. 1, line 6-col. 2, line 26) between a central unit and a plurality of remote units (see Fig. 1b), i.e. communication circuits. The central unit includes a master oscillator (master clock) that feed a sample clock and a symbol clock (see col. 7, lines 25-47, Fig. 6, also see claim 23). Each remote unit may be grant access in successive time period; that is known as Time Division Multiple Access (TDMA) (see col. 8, lines 8-10). Furthermore, a plurality of transmitting line and receiving lines are provided for communication (see 206a-206e in Fig. 1b).

The difference between Bingham and the instant invention lies in that (a) the communication link is located within a PC, and (b) operational and/or control information is embedded within each of the data words. With respect to item (a), the location of the communications link would not affect operation of the method. The recitation of a PC is only directed to the intended use (location) of the communications link, but would not change any step of the claimed method. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to use the method of Bingham et al. in a PC. With respect to item (b), Timm teaches that, in an xDSL system, the operational and/or control information is embedded within each of the data words (196, 198, 199 in Fig. 1d; 187 in Fig. 1e; 36 in Fig. 4a; that is, the data and the control information are time-multiplexed). Therefore, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to embed the operational and/or control information in each data word, so as to transmit control information without increasing the overall transmission bandwidth.

8.   Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bingham

et al. (US Patent 5,680,394, "Bingham" hereinafter) in view of Timm et al. (U.S. Patent

No. 6,055,268, "Timm" hereinafter) as applied to claim 27 above, and further in view of

Leo et al. (U.S. Patent No. 4,999,834).

Bingham in view of Timm teaches the claimed invention (see the rationale

applied to claim 27 above), but does not teach transmitting the operational and/or

control information asynchronously with respect to data words. Leo et al. teaches that

asynchronous communication has the advantage of requiring a low amount of overhead

to implement (col. 1, lines 41-42). Therefore, it would have been obvious to a person of

ordinary skill in the art at the time the invention was made to transmit the operational

and/or control information asynchronously with respect to data words in the system of

Bingham so as to reduce the amount of overhead.

9.   Claim 31 is rejected under 35 U.S.C. 103(a) as being unpatentable over Bingham

et al. (US Patent 5,680,394) in view of Timm et al. (U.S. Patent No. 6,055,268, "Timm"

hereinafter) as applied to claim 27 above, and further in view of the admitted prior art.

Bingham et al. teaches the claimed invention, see the rationale applied to claim

27 above, but fails to teach the digital controller is placed on a computer motherboard.

The admitted prior art described in the background section and in Fig. 1 teaches

separating the analog and digital portions of a high-speed modem. The digital controller

is placed on the motherboard and the analog codec is placed on a card that is

physically separated from the motherboard. Such arrangement would keep the analog

codec free from the electronic noise from the electronic components on the motherboard. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the digital controller on the motherboard and place the analog codec on a card that is physically separated from the motherboard, so as to keep the analog codec free from the electronic noise from the electronic components on the motherboard.

10.   Claims 80 and 81 are rejected under 35 U.S.C. 103(a) as being unpatentable over Timm et al. (U.S. Patent No. 6,055,268, "Timm" hereinafter) in view of the admitted prior art.

Timm teaches the claimed invention, see the rationale applied to claim 71 above, but fails to teach the digital controller is placed on a computer motherboard and the analog codec is located on a card that is physically separated from the motherboard. That is, Timm does not teach transfer the control information over a bus located on a motherboard.

The admitted prior art described in the background section and in Fig. 1 teaches separating the analog and digital portions of a high-speed modem. The digital controller is placed on the motherboard and the analog codec is placed on a card that is physically separated from the motherboard. Such arrangement would keep the analog codec free from the electronic noise from the electronic components on the motherboard. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to place the digital controller on the motherboard and place the analog codec on a card that is physically separated from the motherboard, so

as to keep the analog codec free from the electronic noise from the electronic

components on the motherboard.

Response to Arguments

11.   Applicant's arguments filed 8/18/04 with respect to the Timm reference have

been fully considered but they are not persuasive.

Regarding claims 17, 67, 9, 71-73, 78, 82 (rejected under 35 USC 102(e)) and

claims 18-21, 68, 74-77, 79, 80 (rejected under 35 USC 103), the applicants merely

argue that the Timm does not teach "each of the plurality of words includes a portion of

the data and a portion of the operational and/or control information." Instead, Timm

teaches transmitting the operational and/or control information over the link as separate

time division multiplexed control word.

Examiner's response --- As shown in Fig. 1d, Timm teaches that the channel

multiplexer 199 is used for multiplexing the embedded control data and the data stream

(col. 9, lines 46-48). Timm also teaches that the transceiver 193 performs the bit-to-

symbol conversion (col. 9, line 50). The transceiver 193 appears after the channel

multiplexer 199. Therefore, it is clear that the process of multiplexing is performed

before the bit-to symbol conversion (a symbol is interpreted as a word). The applicants'

argument that Timm teaches transmitting the operational and/or control information over

the link as separate time division multiplexed control word is not persuasive.

12.   Applicant's arguments with respect to claims 27, 30 and 31 have been

considered but are moot in view of the new ground(s) of rejection.

Allowable Subject Matter

13.   Claims 61-66, and 83-95 are allowed.

Claims 37-41 would be allowed if rewritten to overcome the objections stated in

the claims objections section above.

Claims 28 and 70 are objected to as being dependent upon a rejected base

claim, but would be allowable if rewritten in independent form including all of the

limitations of the base claim and any intervening claims and overcome the claim

objections stated above.

Conclusion

14.   Applicant's amendment necessitated the new ground(s) of rejection presented in

this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP

§ 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37

CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later

than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the

examiner should be directed to Chieh M Fan whose telephone number is (571) 272-

3042. The examiner can normally be reached on Monday-Friday 8:00AM-5:30PM,

Alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's

supervisor, Stephen Chin can be reached on (571) 272-3056. The fax phone number

for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

Status information for unpublished applications is available through Private PAIR only.

For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free).

Chieh M Fan
Primary Examiner
Art Unit 2634

Nov. 21, 2004